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PART 1. COAL CROP LINES, MINED-OUT AREAS, AND STRUCTURE CONTOURS

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STATE DEPARTMENT OF PUBLIC INSTRUCTION
DOCUMENTS SECTION

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Pt. 1

COAL RESOURCES OF ALLEGHENY COUNTY, PENNSYLVANIA

PART 1. COAL CROP LINES, MINED-OUT AREAS, AND STRUCTURE CONTOURS

Compiled by Clifford H. Dodge

Pennsylvania Geological Survey

PENNSYLVANIA GEOLOGICAL SURVEY

FOURTH SERIES

HARRISBURG

1985

PY G345/4.3 M89 Pt.1
Dodge, Clifford H.
Coal resources of Allegheny
County, Pennsylvania

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COAL RESOURCES OF ALLEGHENY COUNTY, PENNSYLVANIA

PART 1. COAL CROP LINES, MINED-OUT AREAS, AND STRUCTURE CONTOURS

Compiled by
Clifford H. Dodge

INTRODUCTION

An important function of the Bureau of Topographic and Geologic Survey is to provide accurate, timely information on Pennsylvania's bituminous coal. To achieve this goal, the Bureau is working in cooperation with the U.S. Geological Survey to establish the National Coal Resources Data System (NCRDS). NCRDS is a computer data system developed by the U.S. Geological Survey to facilitate coal-resource calculations for the nation on a county-by-county and seam-by-seam basis, and to produce various kinds of tables and maps of coal characteristics.

Before NCRDS can be used for a particular bituminous-coal-producing county, all available data on the coal must be entered into the computer system. These data include site-specific (point-location) stratigraphic measurements and coal analyses, and specific map elements compiled on 7½-minute topographic quadrangle maps. The map elements, which include coal outcrop lines and mined-out areas, are digitized and stored in the system for subsequent computer manipulations.

Inasmuch as the maps showing coal outcrop lines and mined-out areas are in constant demand by the coal industry, consultants, planners, government personnel, and academicians, they are being made available in this publication. These maps will be of considerable help in planning exploration programs, land acquisition, land use planning, and environmental protection.

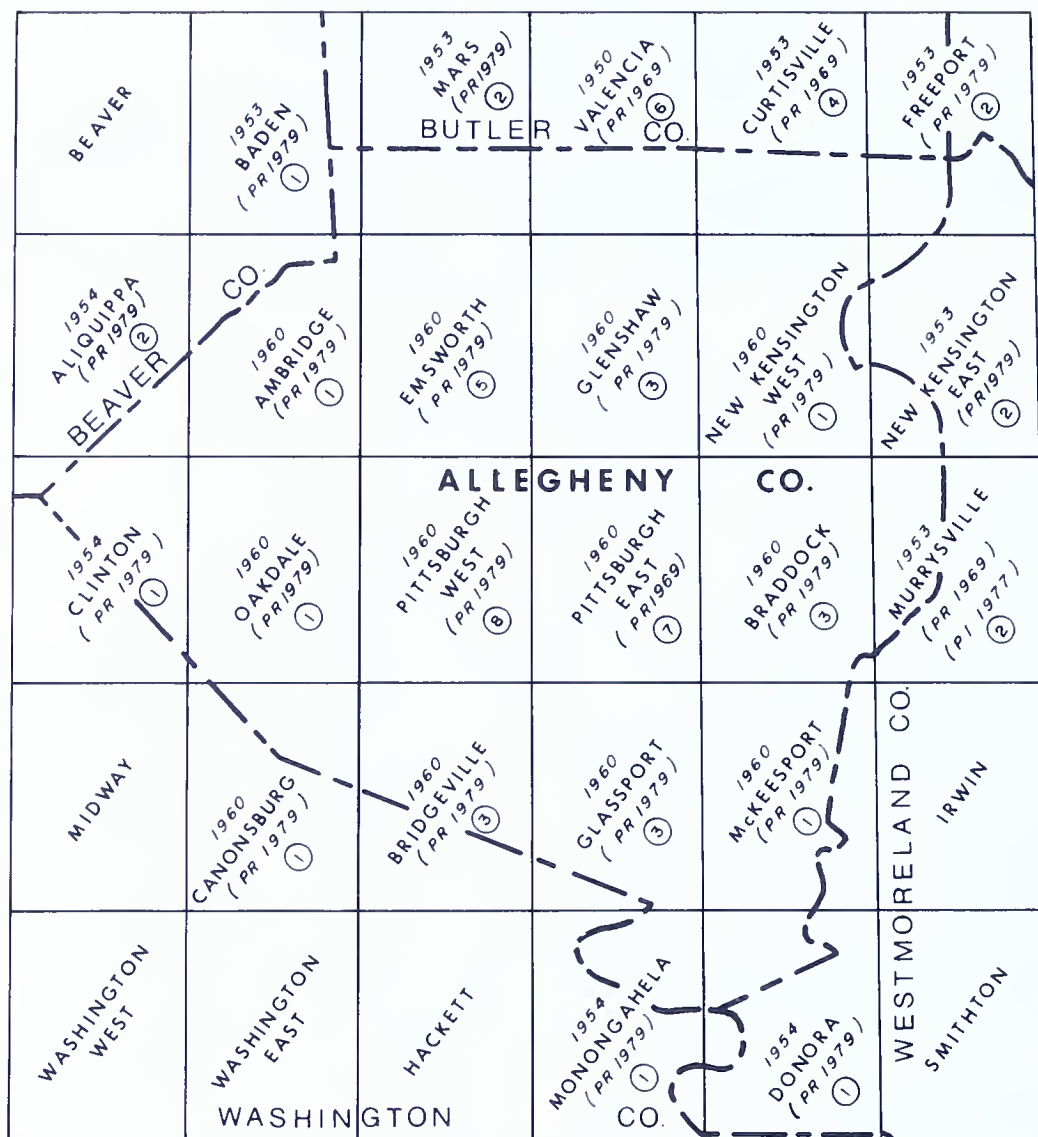
In Part 1 for Allegheny County, two kinds of coal maps may be included for each 7½-minute topographic quadrangle map (Figure 1). First, for each of the principal (principally mined) coal seams in a given quadrangle, there is a map showing

(1) the coal outcrop (crop line) where the coal is present and its horizon where it is probably thin or absent; (2) areas where the coal is known to be absent because of seam discontinuities (shown by lines that commonly cut across topography, denoting approximate limits of preserved coal); and (3) the extent of all known strip and deep mining up to the time of compilation (1979–1980, 1984). Note that all coal areas on these maps are closed or bounded so that they can be used to calculate areas for coal-resource estimates. Second, for each quadrangle, there is a composite coal-crop map that includes the known extent of principal and minor coals, structure contours, and fold axes. The maps contain information on sources of published and unpublished data, map reliability, map symbols, structure-contour intervals and datums, and names of fold axes. The general layout of the compilation maps is shown in Figure 2.

Map reliability terms for crop lines and structure contours are relative and somewhat subjective. Nevertheless, these terms can be quantified and are approximately as follows: very good, ± 10 feet; and good, ± 20 feet.

Other parts for Allegheny County will be published subsequently and will contain tabular information on the coal resources of the county and computer-generated thickness and quality maps of the principal coals. Where sufficient data are available, the quality maps will show trends for sulfur, heat value, ash content, fixed carbon, volatiles, major, minor, and trace elements, and other parameters for each principal coal.

A generalized reference list is given at the end of this section and contains those State and Federal publications that are most useful on the coal geology of Allegheny County.



Based on aerial photography taken:

- | | |
|-------------------------|---|
| ① 1952 and 1977. | ⑥ 1947 and 1969. |
| ② 1952, 1969, and 1977. | ⑦ 1959 and 1969 (and also based on planetable surveys, 1925-41 and 1948). |
| ③ 1952, 1959, and 1977. | ⑧ 1969 and 1977 (and also based on planetable surveys, 1925-41 and 1948). |
| ④ 1952 and 1969. | |
| ⑤ 1953, 1959, and 1977. | |

Figure 1. Index map of 7½-minute quadrangles in Allegheny County. Date of publication of topographic quadrangle map is shown in italic type. Dates of photorevision (PR) and photoinspection (PI) are shown in parentheses.

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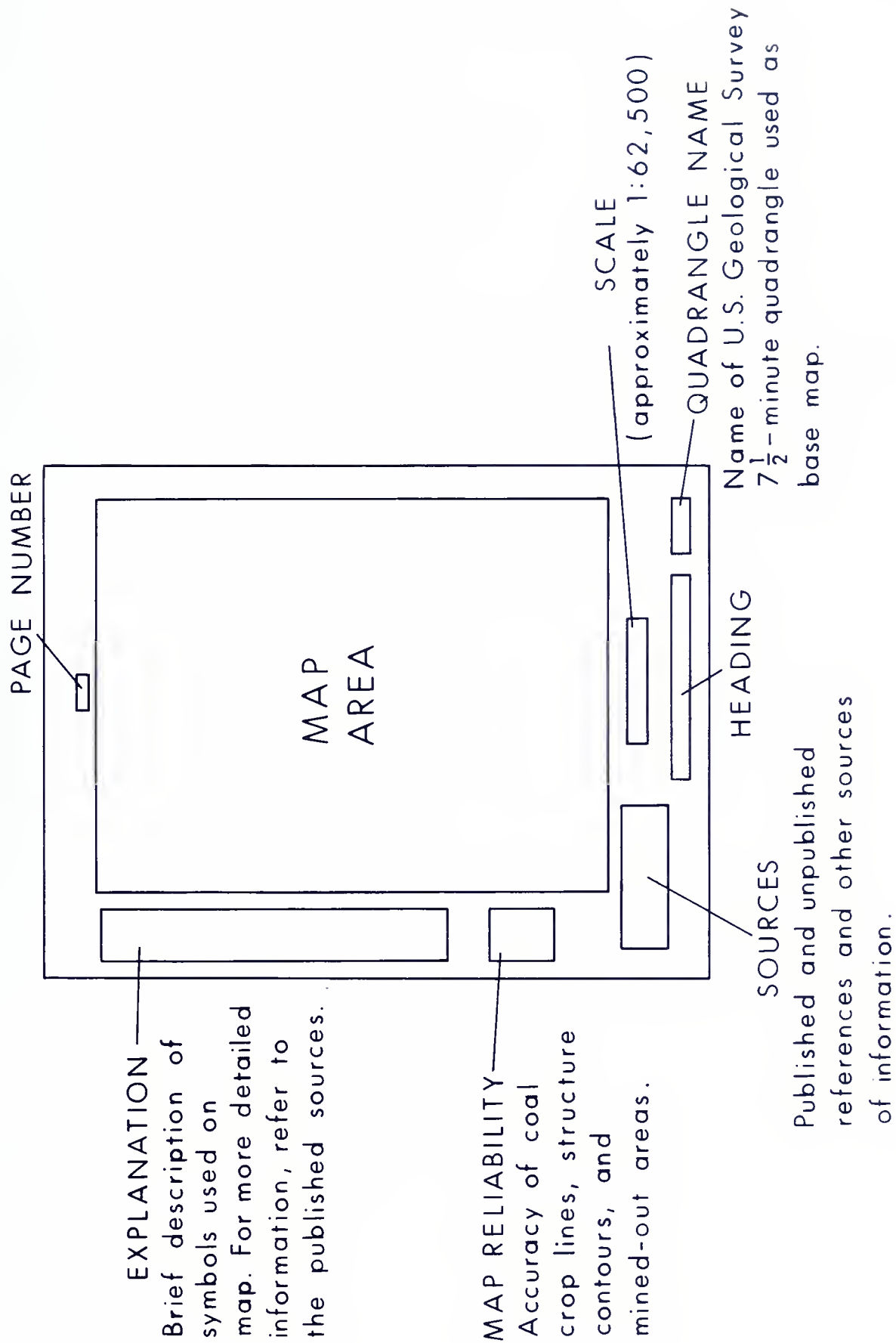


Figure 2. Guide to layout of compilation maps.

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EXPLANATION

Crop line of the
Pittsburgh coal



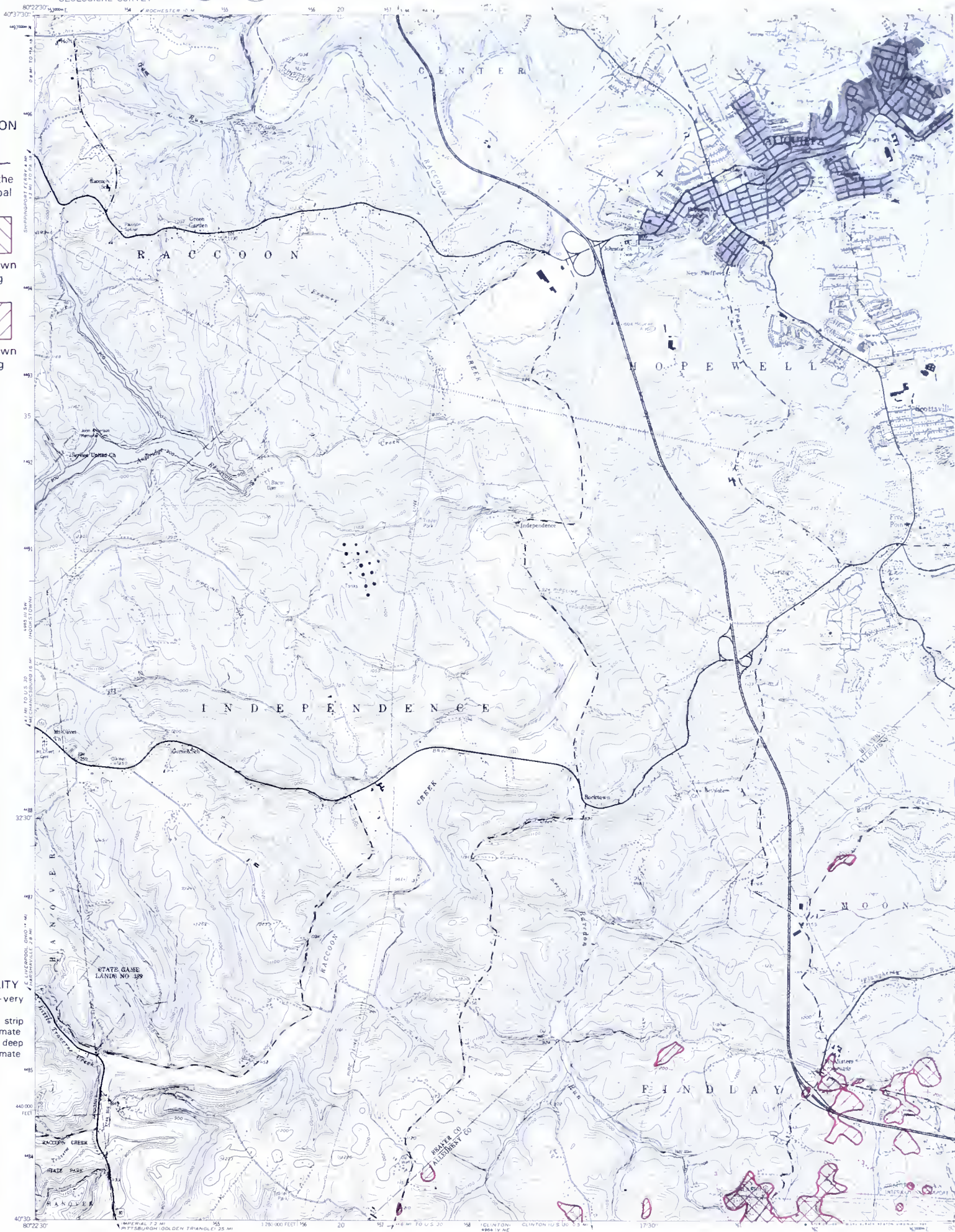
Extent of known
strip mining



Extent of known
deep mining

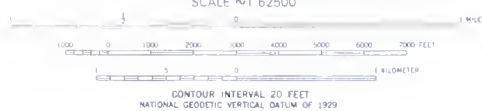
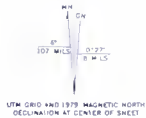
MAP RELIABILITY

Coal crop line—very
good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate



SOURCES

Crop line from Woolsey, L. H. (1905), *Beaver folio*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 134, 15 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.





ALIQUIPPA

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



EXPLANATION

 Crop line of the Pittsburgh coal

 Anticline
Showing axial-plane trace and direction of plunge.

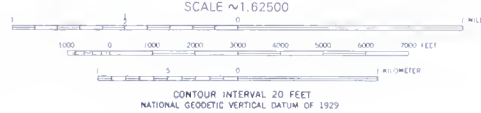
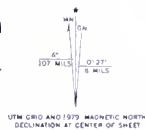
 Syncline
Showing axial-plane trace and direction of plunge.

 -700-
Structure contour
Altitude of the base of the Upper Freeport coal, in feet above mean sea level. Contour interval 20 feet.

MAP RELIABILITY
Coal crop line—very good
Structure contours—very good

SOURCES

Crop line from Woolsey, L. H. (1905), *Beaver folio*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 134, 15 p.
Structure contours modified by C. H. Dodge from Woolsey (1905).



ROAD CLASSIFICATION
Heavy duty ——— Light duty ———
Medium duty ——— Unimproved dirt ———
U.S. Route ——— State Route ———



ALIQUIPPA

COAL CROP LINE AND STRUCTURE CONTOURS

EXPLANATION

Crop line of the Pittsburgh coal

Extent of known strip mining

Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate

SOURCES

Crop line modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL

AMBRIDGE

EXPLANATION

Crop line of the
Upper Freeport coal

MAP RELIABILITY
Coal crop line—good to
very good



SOURCE

Crop line modified by C. H. Dodge from Munn, M. J. (1911),
Sewickley folio, Pennsylvania, U.S. Geological Survey Geologic
Atlas of the U.S., Folio 176, 16 p.

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:62,500
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

AMBRIDGE

CROP LINE OF THE
UPPER FREEPORT COAL

EXPLANATION

CROP LINES

Pittsburgh coal

Little Clarksburg coal

Duquesne coal

Harlem coal

Brush Creek coal

Mahoning coal

Upper Freeport coal

Anticline

Showing axial-plane trace and direction of plunge.

Syncline

Showing axial-plane trace and direction of plunge.

Structure contour

Altitude of the base of the Upper Freeport coal, in feet above mean sea level. Contour interval 20 feet.

MAP RELIABILITY

Coal crop lines—good to very good

Structure contours—good to very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:6250
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

AMBRIDGE

COAL CROP LINES AND STRUCTURE CONTOURS



EXPLANATION

—wi—
Crop line of the
Wilgus coal

↖ ↗
Syncline
Showing axial-plane trace
and direction of plunge.

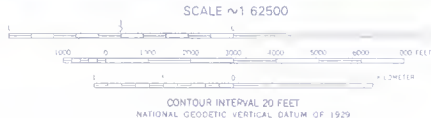
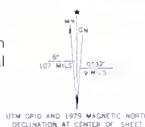
—900—
Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY
Coal crop line—good to
very good
Structure contours—
good to very good



SOURCE

Crop line and structure contours modified by C. H. Dodge from
Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological
Survey Geologic Atlas of the U.S., Folio 176, 16 p.



ROAD CLASSIFICATION
Heavy duty ——— Light duty ———
Medium duty ——— Unimproved d. ———
Interstate Route ——— State Route ———

BADEN

COAL CROP LINE AND STRUCTURE CONTOURS



EXPLANATION



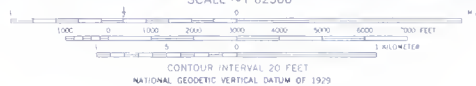
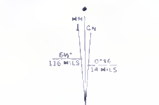
Extent of known
deep mining

MAP RELIABILITY

Limits of known deep
mining—approximate

SOURCE

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



ROAD CLASSIFICATION
Heavy duty Light duty
Medium duty Unimproved dirt
Interstate Route U.S. Route State Route

BRADDOCK

MINED-OUT AREA OF THE
UPPER FREEPORT COAL



EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

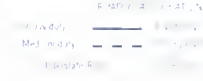
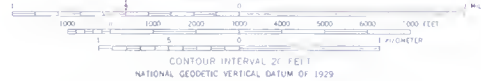
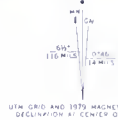
MAP RELIABILITY

- Coal crop line—very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CROP LINE AND MINED-OUT AREAS OF THE PITTSBURGH COAL

BRADDOCK

EXPLANATION

Crop line of the
Redstone coal

Horizon of the
Redstone coal

Extent of known
strip mining

Extent of known
deep mining

MAP RELIABILITY

Coal crop line and horizon—good to very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from unpublished mine maps.

U.S. GEOLOGICAL SURVEY
MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE
0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET
0 1 2 3 4 5 6 7 8 9 10
KILOMETERS
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

BRADDOCK

CROP LINE, HORIZON, AND MINED-OUT AREAS OF THE
REDSTONE COAL

EXPLANATION

CROP LINES

Redstone coal

Pittsburgh coal

Anticline

Showing axial-plane trace and direction of plunge

Syncline

Showing axial-plane trace and direction of plunge

Structure contour

Altitude of the base of the Pittsburgh coal in feet above mean sea level. Contour interval 20 feet

MAP RELIABILITY

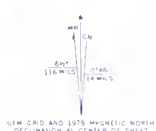
Coal crop lines—good to very good

Structure contours—very good



SOURCE

Crop lines and structure contours modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.



CONTour INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

BRADDOCK

COAL CROP LINES AND
STRUCTURE CONTOURS



EXPLANATION

Crop line of the
Pittsburgh coal



Extent of known
strip mining



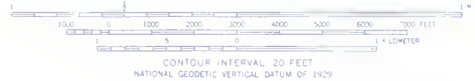
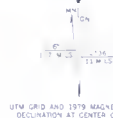
Extent of known
deep mining

MAP RELIABILITY
Coal crop line—good to
very good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p. Limits of strip mining based on interpretation of topographic map and on field checking. Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CROP LINE AND MINED-OUT AREAS OF THE PITTSBURGH COAL

BRIDGEVILLE



EXPLANATION

Crop line of the
Redstone coal

Approximate limit of
preserved coal

MAP RELIABILITY
Coal crop line—good
to very good



SOURCE

Crop line modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio*, Pennsylvania, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p.



BRIDGEVILLE

CROP LINE OF THE
REDSTONE COAL

EXPLANATION

CROP LINES

- W— Washington coal
- wb— Waynesburg coal
- r— Redstone coal
- p— Pittsburgh coal

Anticline
Showing axial-plane trace
and direction of plunge

Syncline
Showing axial-plane trace
and direction of plunge

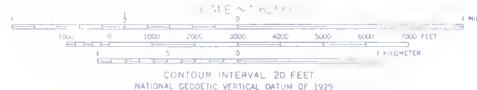
—900—
Structure contour
Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet

MAP RELIABILITY
Coal crop lines—good to
very good
Structure contours—
good to very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from
Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio*,
Pennsylvania, U.S. Geological Survey Geologic Atlas of the U.S.,
Folio 177, 16 p.

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



BRIDGEVILLE

COAL CROP LINES AND
STRUCTURE CONTOURS



EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

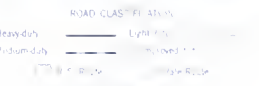
MAP RELIABILITY

- Coal crop line—very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio*, Pennsylvania, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p. Limits of strip mining based on interpretation of topographic map and on field checking. Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CROP LINE AND MINED OUT AREAS OF THE PITTSBURGH COAL

CANONSBURG



EXPLANATION

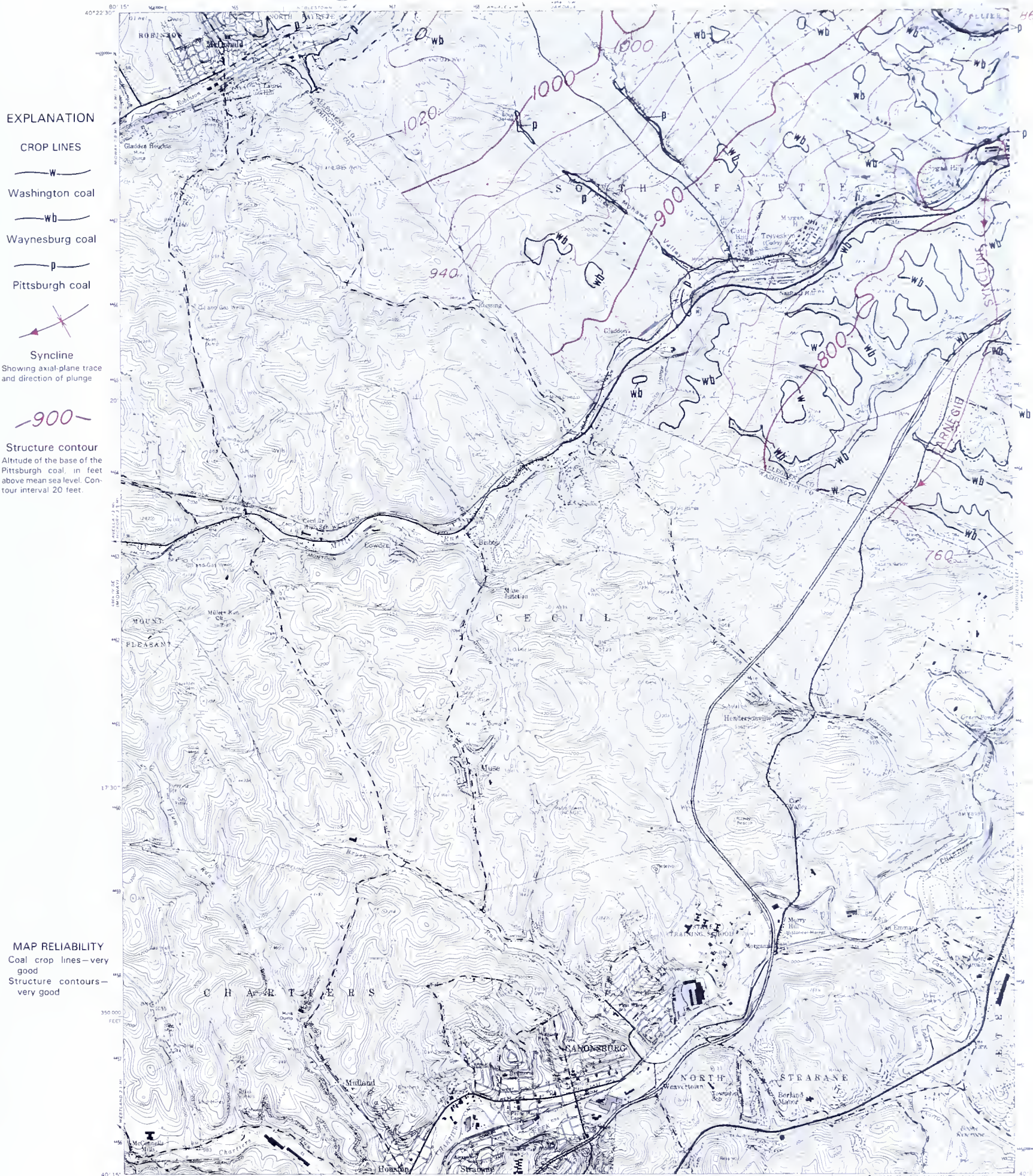
CROP LINES

- Washington coal
- Waynesburg coal
- Pittsburgh coal

- Syncline
Showing axial-plane trace
and direction of plunge

- Structure contour
Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet.

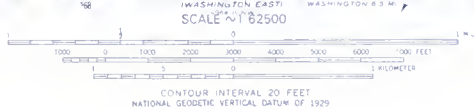
- ## MAP RELIABILITY
- Coal crop lines—very good
 - Structure contours—very good



SOURCE

Crop lines and structure contours modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p.

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



- ## ROAD CLASSIFICATION
- Heavy duty
 - Medium duty
 - Light duty
 - Unimproved dirt road
 - U.S. Route
 - State Route

CANONSBURG

COAL CROP LINES AND STRUCTURE CONTOURS

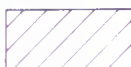


EXPLANATION

Crop line of the
Pittsburgh coal



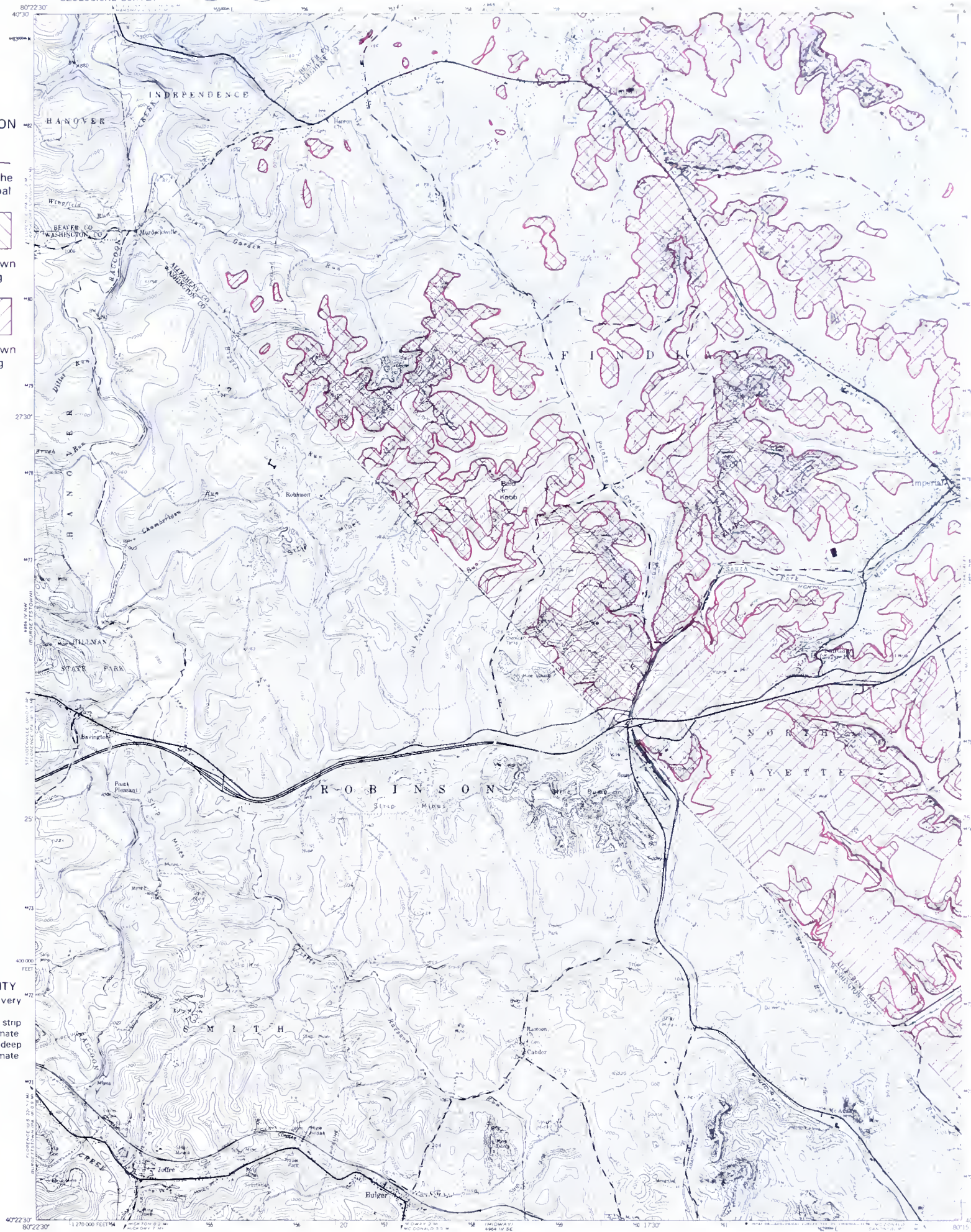
Extent of known
strip mining



Extent of known
deep mining

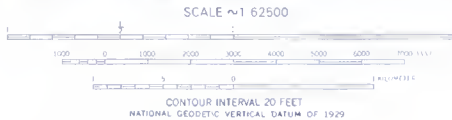
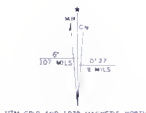
MAP RELIABILITY

Coal crop line—very
good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate



SOURCES

Crop line from Shaw, E. W., and Munn, M. J. (1911). *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



ROAD CLASSIFICATION	
Heavy duty	Light duty
Medium duty	Unimproved rd.
U.S. Route	State Route

CLINTON

CROP LINE AND MINED OUT AREAS OF THE PITTSBURGH COAL



EXPLANATION

—P—
Crop line of the
Pittsburgh coal

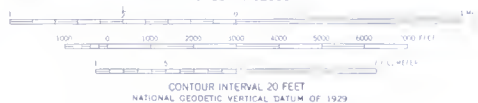
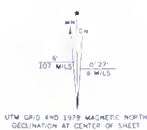
—X—
Syncline
Showing axial-plane trace
and direction of plunge.

—1100—
Structure contour
Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY
Coal crop lines—very
good
Structure contours—
very good

SOURCE

Crop line from Shaw, E. W., and Munn, M. J. (1911). *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p.
Structure contours modified by C. H. Dodge from Shaw and Munn (1911).



ROAD CLASSIFICATION	
Heavy duty	Light duty
Medium duty	Unimproved dirt
U.S. Route	State Route



CLINTON

COAL CROP LINE AND STRUCTURE CONTOURS

EXPLANATION

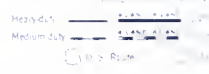
 Crop line of the Lower Freeport coal

MAP RELIABILITY
Coal crop line—very good



SOURCE

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.



CURTISVILLE

CROP LINE OF THE
LOWER FREEPORT COAL

EXPLANATION

- Crop line of the
Upper Freeport coal
- Extent of known
strip mining
- Extent of known
deep mining

- MAP RELIABILITY
- Coal crop line—very
good
- Limits of strip
mining—approximate
- Limits of known deep
mining—approximate

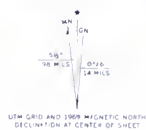


SOURCES

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.

Limits of strip mining based on interpretation of topographic map and on field checking.

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CURTISVILLE

CROP LINE AND MINED-OUT AREAS OF THE
UPPER FREEPORT COAL

EXPLANATION

CROP LINES

Upper Freeport coal

Lower Freeport coal

Anticline
Showing axial-plane trace
and direction of plunge

Syncline
Showing axial-plane trace
and direction of plunge

Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY
Coal crop lines—very
good
Structure contours—
very good



SOURCES


Crop lines modified by C. H. Dodge from Richardson, G. B. (1932). *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*. U.S. Geological Survey Bulletin 829, 102 p.
Structure contours compiled by C. H. Dodge from unpublished mine maps and unpublished data; minor reference to Richardson (1932).

COAL CROP LINES AND
STRUCTURE CONTOURS

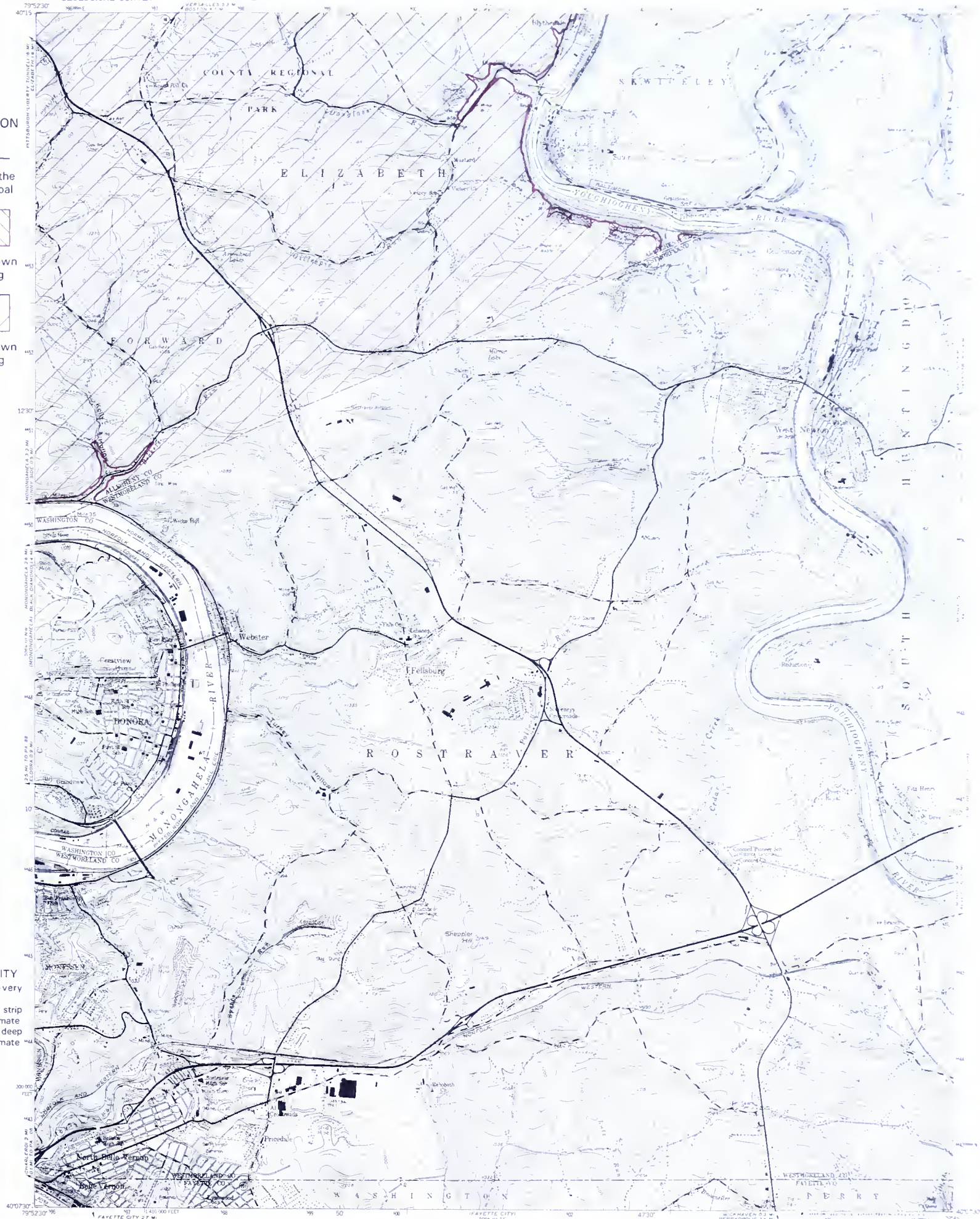
CURTISVILLE



EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Campbell, M. R. (1903), *Brownsville-Connellsville tola*, Pennsylvania, U.S. Geological Survey Geologic Atlas of the U.S., Folio 94, 19 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:625,000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD LOCATION
Major Road
Minor Road
Stream
Pittsburgh
Donora

DONORA

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



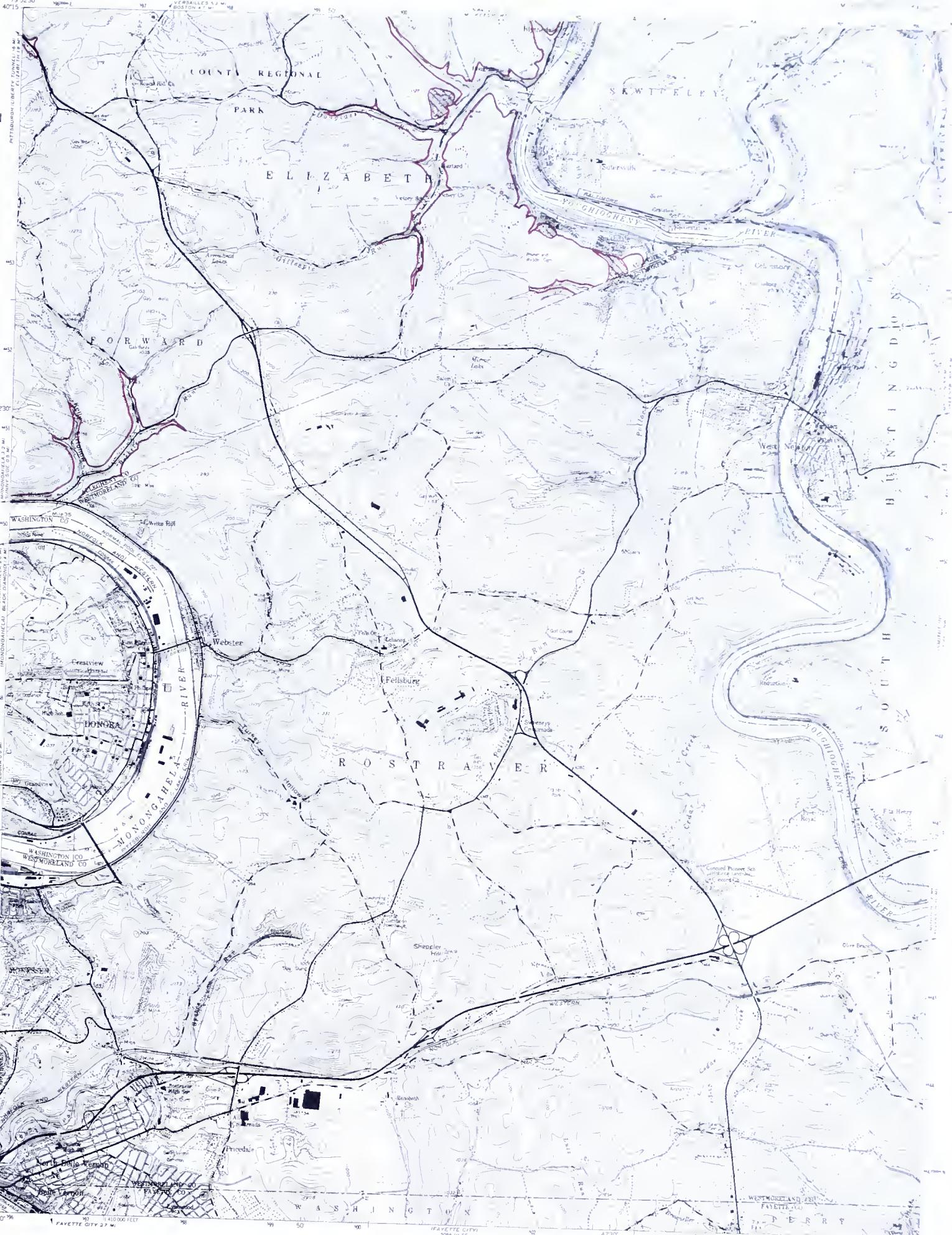
EXPLANATION

Crop line of the
Redstone coal



Extent of known
strip mining

MAP RELIABILITY
Coal crop line—good
to very good
Limits of known strip
mining—approximate



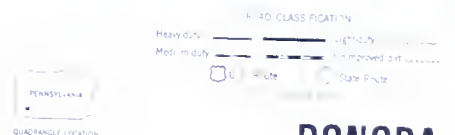
SOURCES

Crop line modified by C. H. Dodge from Campbell, M. R. (1903).
Brownsville-Connellsville folio, Pennsylvania, U.S. Geological Survey
Geologic Atlas of the U.S., Folio 94, 19 p.
Limits of strip mining based on interpretation of topographic map
and on field checking.

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



CROP LINE AND MINED-OUT AREAS OF THE
REDSTONE COAL

DONORA



EXPLANATION

CROP LINES

- W— Washington coal
- wb— Waynesburg coal
- r— Redstone coal
- p— Pittsburgh coal

- Anticline
Showing axial-plane trace and direction of plunge

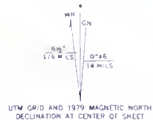
- Syncline
Showing axial-plane trace and direction of plunge

- 800—
Structure contour
Altitude of the base of the Pittsburgh coal, in feet above mean sea level. Contour interval 20 feet.

- MAP RELIABILITY
Coal crop lines—good to very good
Structure contours—very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from Campbell, M. R. (1903). *Brownsville-Connelisville folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 94, 19 p.



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929





DONORA

COAL CROP LINES AND STRUCTURE CONTOURS

EXPL

EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known deep mining

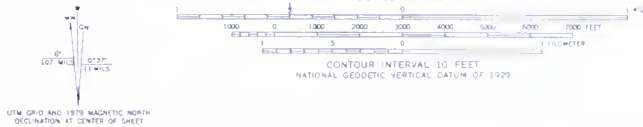
MAP RELIABILITY

- Coal crop line—very good
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



ROAD CLASSIFICATION
Heavy duty
Medium duty
Light duty
Unimproved
U.S. Route
Scale 1:62,500

EMSWORTH

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



EXPLANATION

CROP LINES

- Pittsburgh coal
- Little Clarksburg coal
- Wellersburg coal
- Duquesne coal
- Harlem coal
- Upper Bakerstown coal
- Wilgus coal
- Brush Creek coal

Anticline
Showing axial-plane trace and direction of plunge.

Syncline
Showing axial-plane trace and direction of plunge

Structure contour
Altitude of the base of the Upper Freeport coal, in feet above mean sea level. Contour interval 20 feet.

MAP RELIABILITY
Coal crop lines—good to very good
Structure contours—good to very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62,500
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
1:62,500
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

EMSWORTH

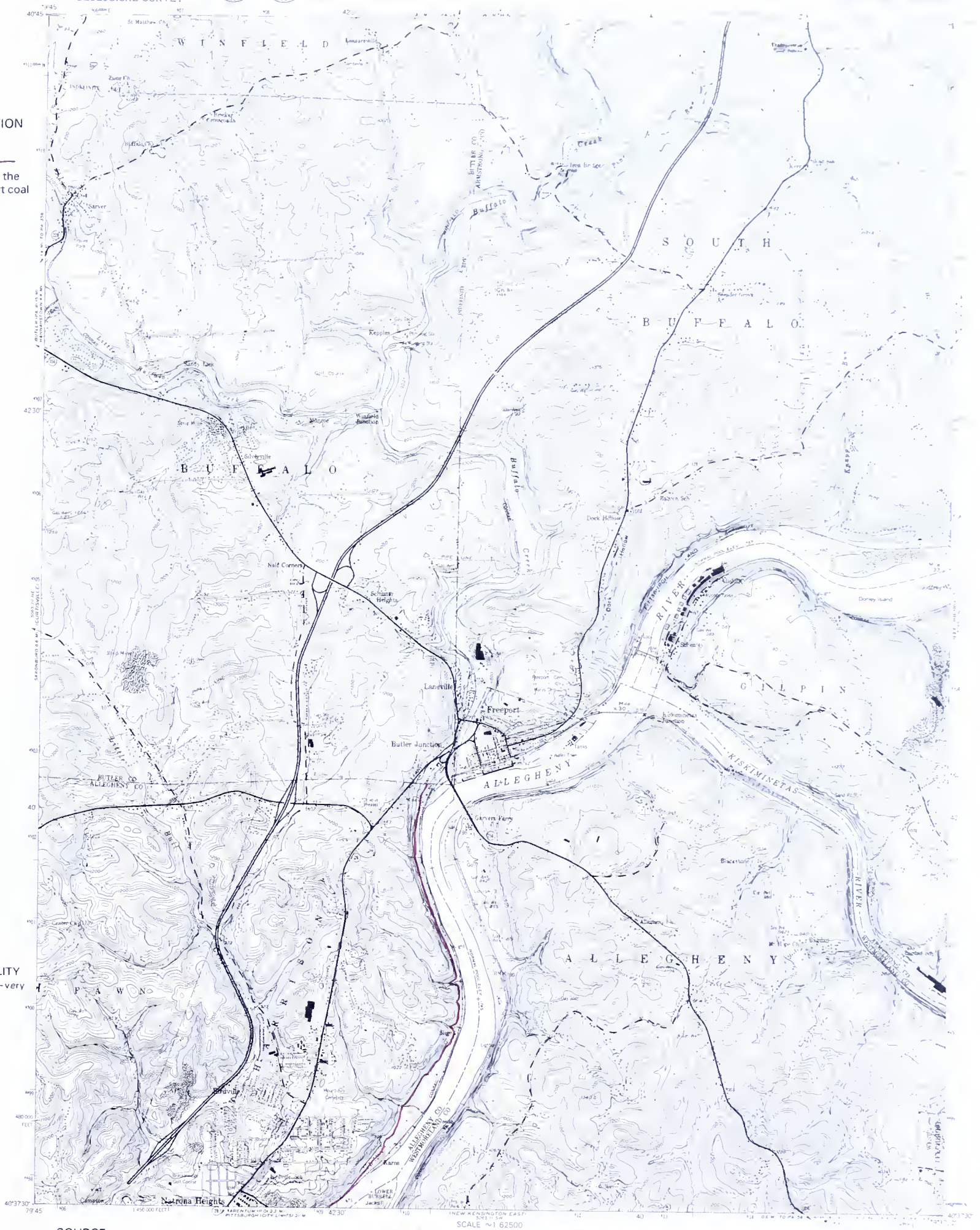
COAL CROP LINES AND
STRUCTURE CONTOURS



EXPLANATION

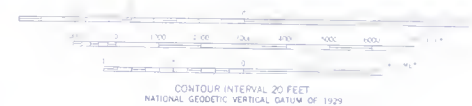
Crop line of the
Lower Freeport coal

MAP RELIABILITY
Coal crop line—very
good



SOURCE

Crop line modified by C. H. Dodge from Hughes, H. H. (1933),
Freeport quadrangle—Geology and mineral resources, Pennsylvania
Geological Survey, 4th ser., Atlas 36, 272 p.



FREEPORT

CROP LINE OF THE
LOWER FREEPORT COAL



EXPLANATION

Crop line of the
Upper Freeport coal



Extent of known
deep mining

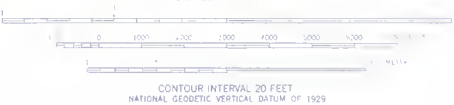
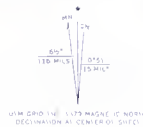
MAP RELIABILITY

Coal crop line—very
good
Limits of known deep
mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Hughes, H. H. (1933).
Freeport quadrangle—Geology and mineral resources, Pennsylvania
Geological Survey, 4th ser., Atlas 36, 272 p.
Limits of deep mining from Pennsylvania Department of Environ-
mental Resources, Bureau of Mining and Reclamation (1978), un-
published map.



FREEPORT

**CROP LINE AND MINED-OUT AREAS OF THE
UPPER FREEPORT COAL**



EXPLANATION

CROP LINES

—u—
Upper Freeport coal

—l—
Lower Freeport coal

Anticline
Showing axial-plane trace
and direction of plunge.

—900—

Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY

Coal crop lines—very
good

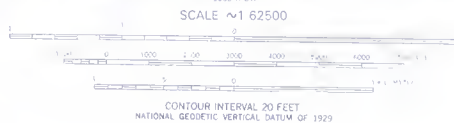
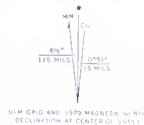
Structure contours—
very good



SOURCES

Crop lines modified by C. H. Dodge from Hughes, H. H. (1933),
Freeport quadrangle—Geology and mineral resources, Pennsylvania
Geological Survey, 4th ser., Atlas 36, 272 p.

Structure contours compiled by C. H. Dodge from unpublished mine
maps and unpublished data; some reference to Hughes (1933).



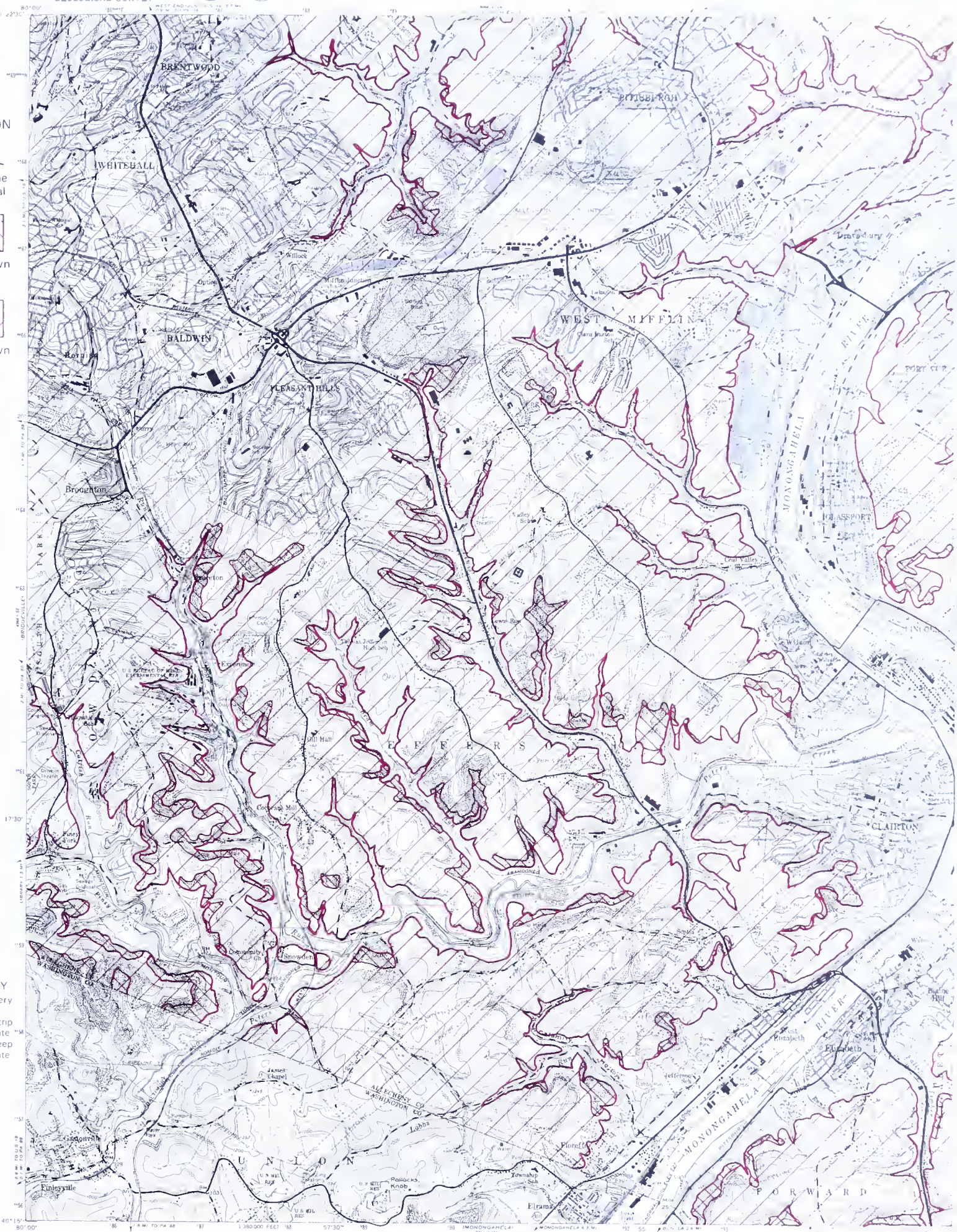
FREEPORT

COAL CROP LINES AND
STRUCTURE CONTOURS



EXPLANATION

- Crop line of the Pittsburgh coal
- Extent of known strip mining
- Extent of known deep mining



MAP RELIABILITY
Coal crop line very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate

SOURCES





Crop line modified by C. H. Dodge from Johnson, M. E. (1929). *Pittsburgh quadrangle—Geology and mineral resources*. Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



**CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL**

GLASSPORT

EXPLANATION

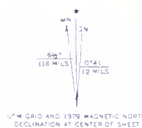
-  Crop line of the Redstone coal
-  Horizon of the Redstone coal
-  Approximate limit of preserved coal
-  Extent of known strip mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate



SOURCES

Crop line modified by C. H. Dodge and Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.



SCALE 1:62500
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

GLASSPORT

CROP LINE, HORIZON, AND MINED-OUT AREAS OF THE
REDSTONE COAL



COAL CROP LINES AND STRUCTURE CONTOURS



EXPLANATION

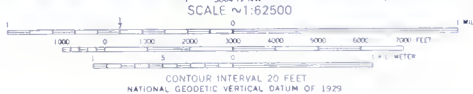
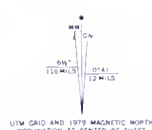
Crop line of the
Lower Freeport coal

MAP RELIABILITY
Coal crop line—good
to very good



SOURCE

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.



ROAD CLASSIFICATION

Heavy duty
Medium duty
Interstate Route
State Route



GLENSHAW

CROP LINE OF THE
LOWER FREEPORT COAL





EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known deep mining

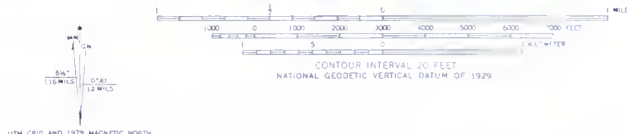
MAP RELIABILITY

- Coal crop line—very good
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



GLENSHAW

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



EXPLANATION

CROP LINES

—p—
Pittsburgh coal

—du—
Duquesne coal

—uf—
Upper Freeport coal

—lf—
Lower Freeport coal

Anticline
Showing axial-plane trace
and direction of plunge.

Syncline
Showing axial-plane trace
and direction of plunge.

—900—
Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet

MAP RELIABILITY

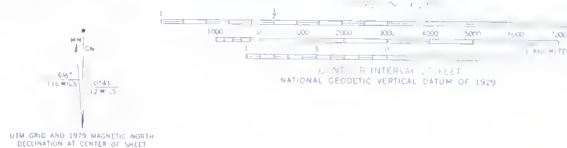
Coal crop lines—good
to very good
Structure contours—
good to very good



SOURCES

Crop lines modified by C. H. Dodge from Richardson, G. B. (1932). *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.

Structure contours extensively modified by C. H. Dodge from Richardson (1932) using unpublished mine maps and unpublished data.



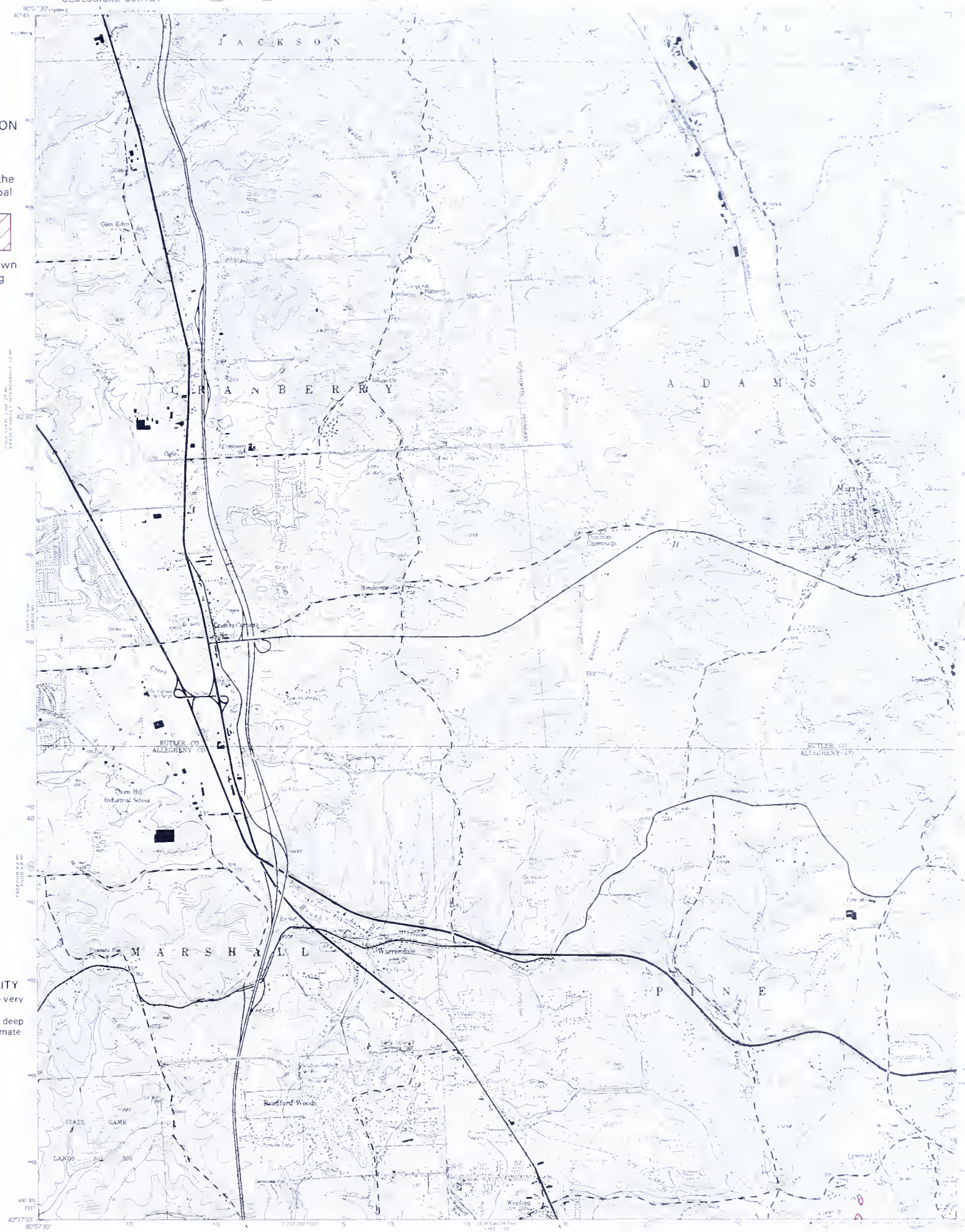
GLENSHAW

COAL CROP LINES AND
STRUCTURE CONTOURS



EXPLANATION

- Crop line of the Pittsburgh coal
- Extent of known deep mining



MAP RELIABILITY
Coal crop line—very good
Limits of known deep mining—approximate

SOURCES

Crop line modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CENTROIDAL INTERVAL, 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MARS

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



EXPLANATION

CROP LINES

- Pittsburgh coal
- Wellersburg coal
- Duquesne coal
- Harlem coal

Anticline
Showing axial-plane trace and direction of plunge.

Syncline
Showing axial-plane trace and direction of plunge.

Structure contour
Altitude of the base of the Upper Freeport coal, in feet above mean sea level. Contour interval 20 feet.

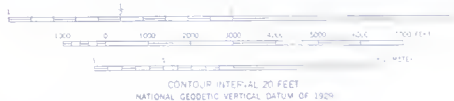
MAP RELIABILITY
Coal crop lines—very good
Structure contours—very good



SOURCE

Crop lines and structure contours modified by C. H. Dodge from Munn, M. J. (1911), *Sewickley folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 176, 16 p.

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



COAL CROP LINES AND STRUCTURE CONTOURS



EXPLANATION

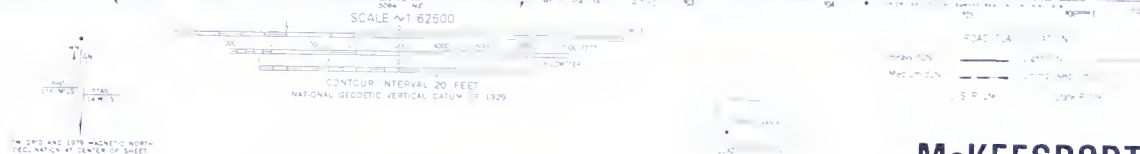

Extent of known
deep mining

MAP RELIABILITY
Limits of known deep
mining—approximate



SOURCE

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (197B), unpublished map.



MINED-OUT AREA OF THE
UPPER FREEPORT COAL

McKEESPORT



EXPLANATION

Crop line of the Pittsburgh coal



Extent of known strip mining



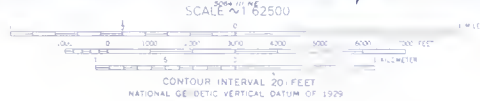
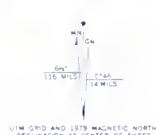
Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p. Limits of strip mining based on interpretation of topographic map and on field checking. Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



ROAD CLASSIFICATION
Heavy duty ——— Light duty ———
Medium duty ——— Unimproved ———
U.S. Route ——— State Route ———

McKEESPORT

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL

EXPLANATION

Crop line of the
Redstone coal

Horizon of the
Redstone coal

Extent of known
strip mining

Extent of known
deep mining

MAP RELIABILITY
Coal crop line—very
good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Johnson, M. E. (1929). *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from unpublished mine maps.

UTM GRID AND 1975 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:62,500
CONTOUR INTERVAL 20 FEET
NATIONAL GEOGRAPHIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy duty Light duty
Medium duty Unimproved dirt
U. S. Route State Route

PENNSYLVANIA
QUADRANGLE LOCATION

McKEESPORT

**CROP LINE, HORIZON, AND MINED-OUT AREAS OF THE
REDSTONE COAL**



EXPLANATION

CROP LINES

- Waynesburg coal
- Redstone coal
- Pittsburgh coal

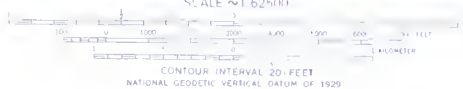
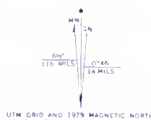
- Anticline
Showing axial-plane trace
and direction of plunge
- Syncline
Showing axial-plane trace
and direction of plunge

- Structure contour
Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet.

- MAP RELIABILITY
Coal crop lines—very
good
Structure contours—
good to very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.



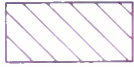
COAL CROP LINES AND STRUCTURE CONTOURS

McKEESPORT



EXPLANATION

Crop line of the
Pittsburgh coal



Extent of known
strip mining



Extent of known
deep mining

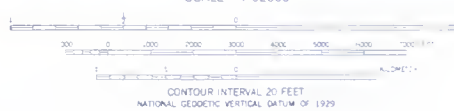
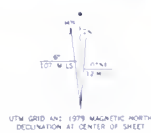
MAP RELIABILITY

Coal crop line—very
good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate



SOURCES

Crop line from Roen, J. B., Kent, B. H., and Schweinfurth, S. P. (1968), *Geologic map of the Monongahela quadrangle, southwestern Pennsylvania*, U.S. Geological Survey Geologic Quadrangle Map GQ-743, scale 1:24,000.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



MONONGAHELA

CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL



EXPLANATION

- Crop line of the Redstone coal
- Extent of known strip mining
- Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate



SOURCES

Crop line from Roen, J. B., Kent, B. H., and Schweinfurth, S. P. (1968), *Geologic map of the Monongahela quadrangle, southwestern Pennsylvania*, U.S. Geological Survey Geologic Quadrangle Map GQ-743, scale 1:24,000.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from unpublished mine maps.

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:62,500
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
Scale Route
Interstate Route

MONONGAHELA

CROP LINE AND MINED-OUT AREAS OF THE
REDSTONE COAL



EXPLANATION

CROP LINES

- W— Washington coal
- wb— Waynesburg coal
- r— Redstone coal
- p— Pittsburgh coal

Anticline
Showing axial-plane trace
and direction of plunge.

Syncline
Showing axial-plane trace
and direction of plunge.

—800—

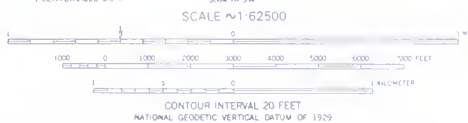
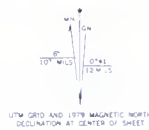
Structure contour
Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY
Coal crop lines—very
good
Structure contours—
very good



SOURCE

Crop lines from Roen, J. B., Kent, B. H., and Schweinfurth, S. P. (1968), *Geologic map of the Monongahela quadrangle, southwestern Pennsylvania*, U.S. Geological Survey Geologic Quadrangle Map GQ-743, scale 1:24,000. Structure contours slightly modified by C. H. Dodge from Roen and others (1968).



ROAD CLASSIFICATION
Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved ———
U.S. Route ——— State Route ———
Interstate Route ———

MONONGAHELA

COAL CROP LINES AND STRUCTURE CONTOURS

EXPLANATION



Extent of known
deep mining

MAP RELIABILITY

Limits of known deep
mining—approximate



SOURCE

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.

UTM GRID AND 1960 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

HARRISON CITY 17° 15' N
DECEMBER 8 1981
SCALE 1:62500
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy duty ——— Light duty ———
Medium duty ——— Unimproved dirt ———
U.S. Route ——— State Route ———
Interstate Route ———



MURRYSVILLE

MINED-OUT AREA OF THE
UPPER FREEPORT COAL

EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

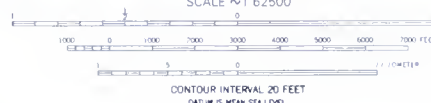
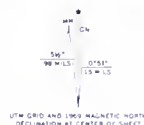
MAP RELIABILITY

- Coal crop line—very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate



SOURCES

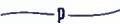
Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



MURRYSVILLE

**CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL**

EXPLANATION

 Crop line of the Pittsburgh coal

 Syncline
Showing axial-plane trace and direction of plunge.

 Structure contour
Altitude of the base of the Pittsburgh coal, in feet above mean sea level. Contour interval 20 feet.

MAP RELIABILITY
Coal crop line—very good
Structure contours—good to very good



SOURCE

Crop line and structure contours modified by C. H. Dodge from Johnson, M. E. (1925), *Greensburg quadrangle—Mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 37, 162 p.

UTM GRID AND 1983 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

HARRISON CITY 17° W
GREENSBURG 8° W
SCALE 1:62,500
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty  Light-duty 
Medium-duty  Unimproved dirt 
 U.S. Route  State Route
 Interstate Route

MURRYSVILLE

COAL CROP LINE AND
STRUCTURE CONTOURS



EXPLANATION

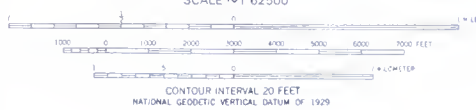
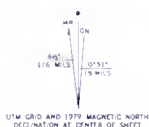
Crop line of the
Lower Freeport coal

MAP RELIABILITY
Coal crop line—very
good



SOURCE

Crop line modified by C. H. Dodge from Hughes, H. H. (1933).
Freeport quadrangle—Geology and mineral resources. Pennsylvania
Geological Survey, 4th ser., Atlas 36, 272 p.



QUADRANGLE LOCATION
**NEW KENSINGTON
EAST**

**CROP LINE OF THE
LOWER FREEPORT COAL**

EXPLANATION

Crop line of the
Upper Freeport coal



Extent of known
deep mining

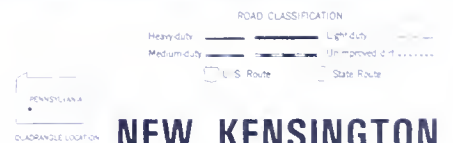
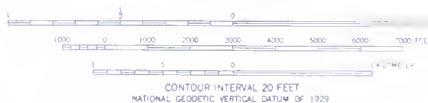
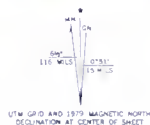
MAP RELIABILITY

Coal crop line—very
good
Limits of known deep
mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Hughes, H. H. (1933), *Freeport quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 36, 272 p.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.

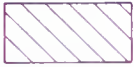


CROP LINE AND MINED-OUT AREAS OF THE
UPPER FREEPORT COAL

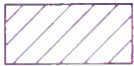
NEW KENSINGTON
EAST

EXPLANATION

Crop line of the
Pittsburgh coal



Extent of known
strip mining



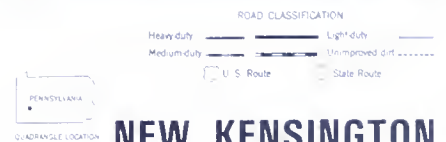
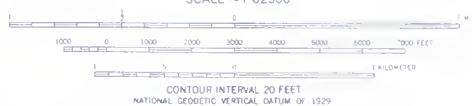
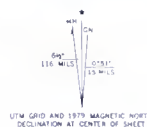
Extent of known
deep mining

MAP RELIABILITY

Coal crop line—very
good
Limits of known strip
mining—approximate
Limits of known deep
mining—approximate

SOURCES

Crop line modified by C. H. Dodge from Hughes, H. H. (1933), *Freeport quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 36, 272 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



**NEW KENSINGTON
EAST**

**CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL**

EXPLANATION

CROP LINES

Pittsburgh coal

Upper Freeport coal

Lower Freeport coal

Anticline

Showing axial-plane trace and direction of plunge.

Syncline

Showing axial-plane trace and direction of plunge.

—600—

Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY

Coal crop lines—very
good
Structure contours—
very good



SOURCES

Crop line modified by C. H. Dodge from Hughes, H. H. (1933), *Freeport quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 36, 272 p.
Structure contours compiled by C. H. Dodge from unpublished mine maps and unpublished data; some reference to Hughes (1933).

COAL CROP LINES AND
STRUCTURE CONTOURS

NEW KENSINGTON
EAST



EXPLANATION

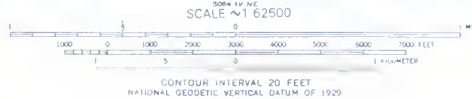
Crop line of the
Lower Freeport coal

MAP RELIABILITY
Coal crop line—very
good



SOURCE

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.



ROAD CLASSIFICATION




Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
Interstate Route	State Route

NEW KENSINGTON
WEST

CROP LINE OF THE
LOWER FREEPORT COAL



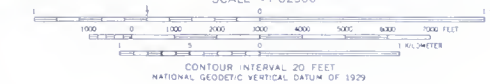
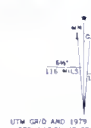
EXPLANATION

-  Crop line of the Upper Freeport coal
-  Extent of known strip mining
-  Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate

SOURCES

Crop line modified by C. H. Dodge from Richardson, G. B. (1932). *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*. U.S. Geological Survey Bulletin 829, 102 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.




CROP LINE AND MINED-OUT AREAS OF THE
UPPER FREEPORT COAL

NEW KENSINGTON
WEST





EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

MAP RELIABILITY

- Coal crop line—very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate

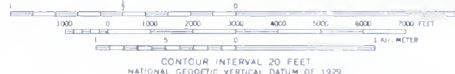
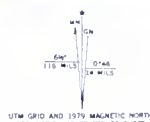


SOURCES

Crop line modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin B29, 102 p.

Limits of strip mining based on interpretation of topographic map and on field checking.

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved
Temporary Road
State Road

**NEW KENSINGTON
WEST**

**CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL**



EXPLANATION

CROP LINES

- Pittsburgh coal
- Upper Bakerstown coal
- Brush Creek coal
- Upper Freeport coal
- Lower Freeport coal

- Anticline
Showing axial-plane trace and direction of plunge.

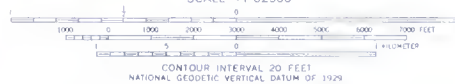
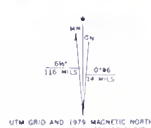
- Syncline
Showing axial-plane trace and direction of plunge.

- Structure contour
Altitude of the base of the Upper Freeport coal, in feet above mean sea level. Contour interval 20 feet

- MAP RELIABILITY
Coal crop lines—very good
Structure contours—very good

SOURCES

Crop lines modified by C. H. Dodge from Richardson, G. B. (1932). *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*. U.S. Geological Survey Bulletin 829, 102 p.
Structure contours compiled by C. H. Dodge from unpublished mine maps and unpublished data; minor reference to Richardson (1932).



COAL CROP LINES AND STRUCTURE CONTOURS

NEW KENSINGTON WEST

EXPLANATION

CROP LINES

Pittsburgh coal

Upper Bakerstown coal

Brush Creek coal

Upper Freeport coal

Lower Freeport coal



Anticline
Showing axial-plane trace and direction of plunge.



Syncline
Showing axial-plane trace and direction of plunge.

—600—

Structure contour
Altitude of the base of the
Upper Freeport coal, in feet
above mean sea level. Con-
tour interval 20 feet

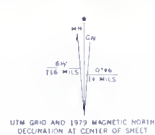
MAP RELIABILITY

Coal crop lines—very
good
Structure contours—
very good



SOURCES

Crop lines modified by C. H. Dodge from Richardson, G. B. (1932). *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin B29, 102 p.
Structure contours compiled by C. H. Dodge from unpublished mine maps and unpublished data; minor reference to Richardson (1932).






ROAD - LASTED AT 74
Rel. 1973
Scale 1:25,000

NEW KENSINGTON
WEST

COAL CROP LINES AND
STRUCTURE CONTOURS

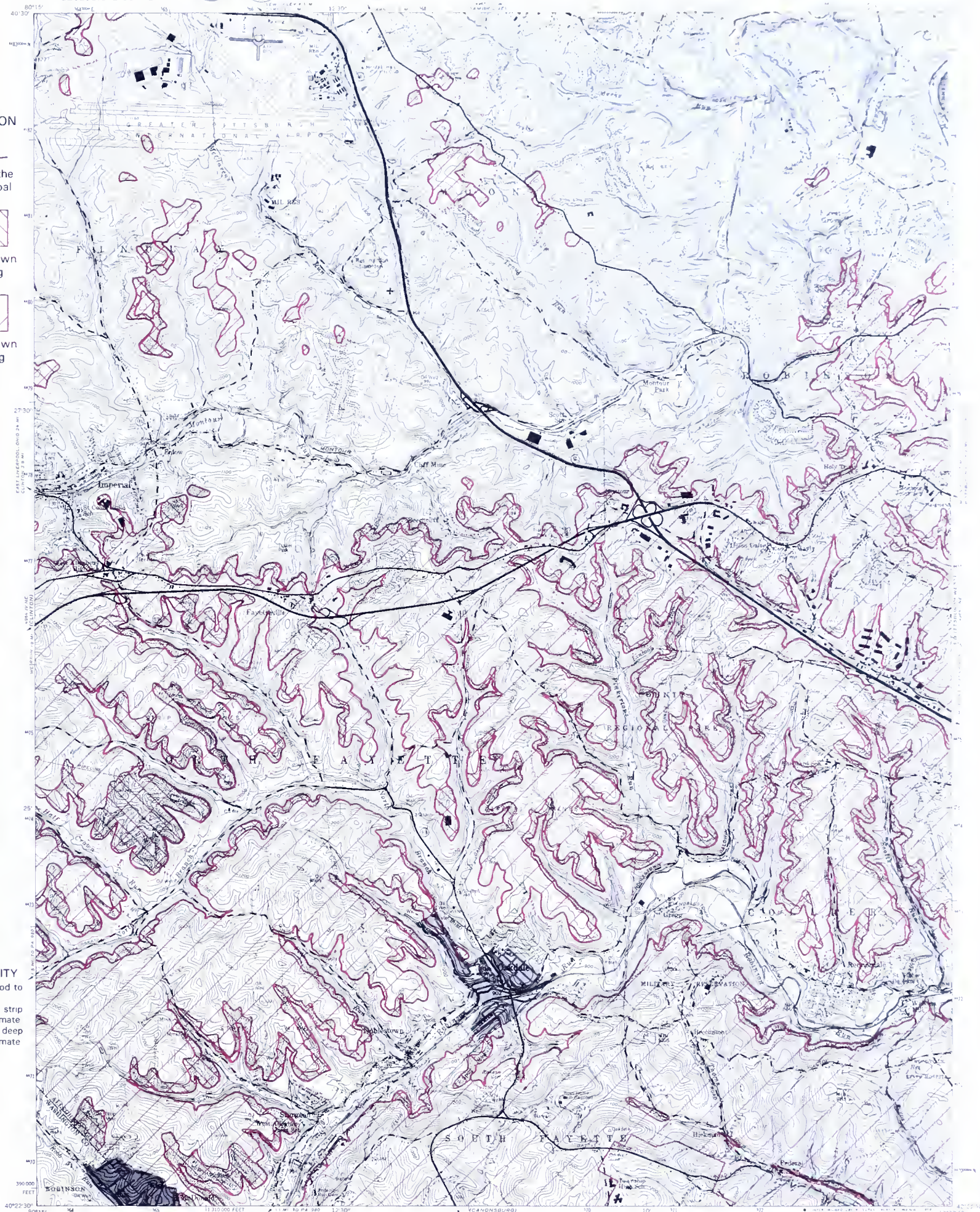


EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

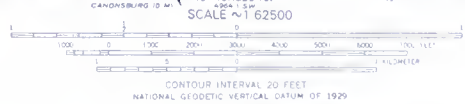
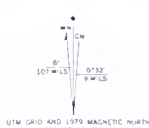
MAP RELIABILITY

- Coal crop line—good to very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p. Limits of strip mining based on interpretation of topographic map and on field checking. Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



OAKDALE

CROP LINE AND MINED-OUT AREAS OF THE PITTSBURGH COAL



EXPLANATION

CROP LINES

Waynesburg coal

Pittsburgh coal

Anticline
Showing axial-plane trace
and direction of plunge

Syncline
Showing axial-plane trace
and direction of plunge

Structure contour

Altitude of the base of the
Pittsburgh coal in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY

Coal crop lines—good
to very good
Structure contours—
good to very good



SOURCE

Crop lines and structure contours modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio, Pennsylvania*, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p.



CONTOUR INTERVAL 20 FEET
NAT. MAGNETIC VERTICAL DATUM

OAKDALE

COAL CROP LINES AND
STRUCTURE CONTOURS

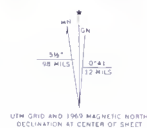
EXPLANATION

- Crop line of the Pittsburgh coal
- Extent of known strip mining
- Extent of known deep mining

MAP RELIABILITY
Coal crop line—very good
Limits of known strip mining—approximate
Limits of known deep mining—approximate

SOURCES

Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.
Limits of strip mining based on interpretation of topographic map and on field checking.
Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



**PITTSBURGH
EAST**

**CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL**

EXPLANATION



Crop line of the
Redstone coal



Horizon of the
Redstone coal

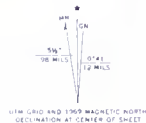


Approximate limit
of preserved coal

MAP RELIABILITY
Coal crop line and horizon—good to very good

SOURCE

Crop line modified by C. H. Dodge from Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27, 236 p.



CROP LINE AND HORIZON OF THE
REDSTONE COAL

PITTSBURGH
EAST

EXPLANATION

CROP LINES

Redstone coal

Pittsburgh coal

Anticline

Showing axial-plane trace
and direction of plunge.

Syncline

Showing axial-plane trace
and direction of plunge

Structure contour

Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet.

MAP RELIABILITY

Coal crop lines—good

to very good

Structure contours—

good to very good

SOURCE

Crop lines and structure contours modified by C. H. Dodge from
Johnson, M. E. (1929), *Pittsburgh quadrangle—Geology and mineral
resources*, Pennsylvania Geological Survey, 4th ser., Atlas 27,
236 p.




UTM GRID TWO 1983 MAGNETIC NORTH
DECLINATION 11° CENTER OF SHEET



**PITTSBURGH
EAST**

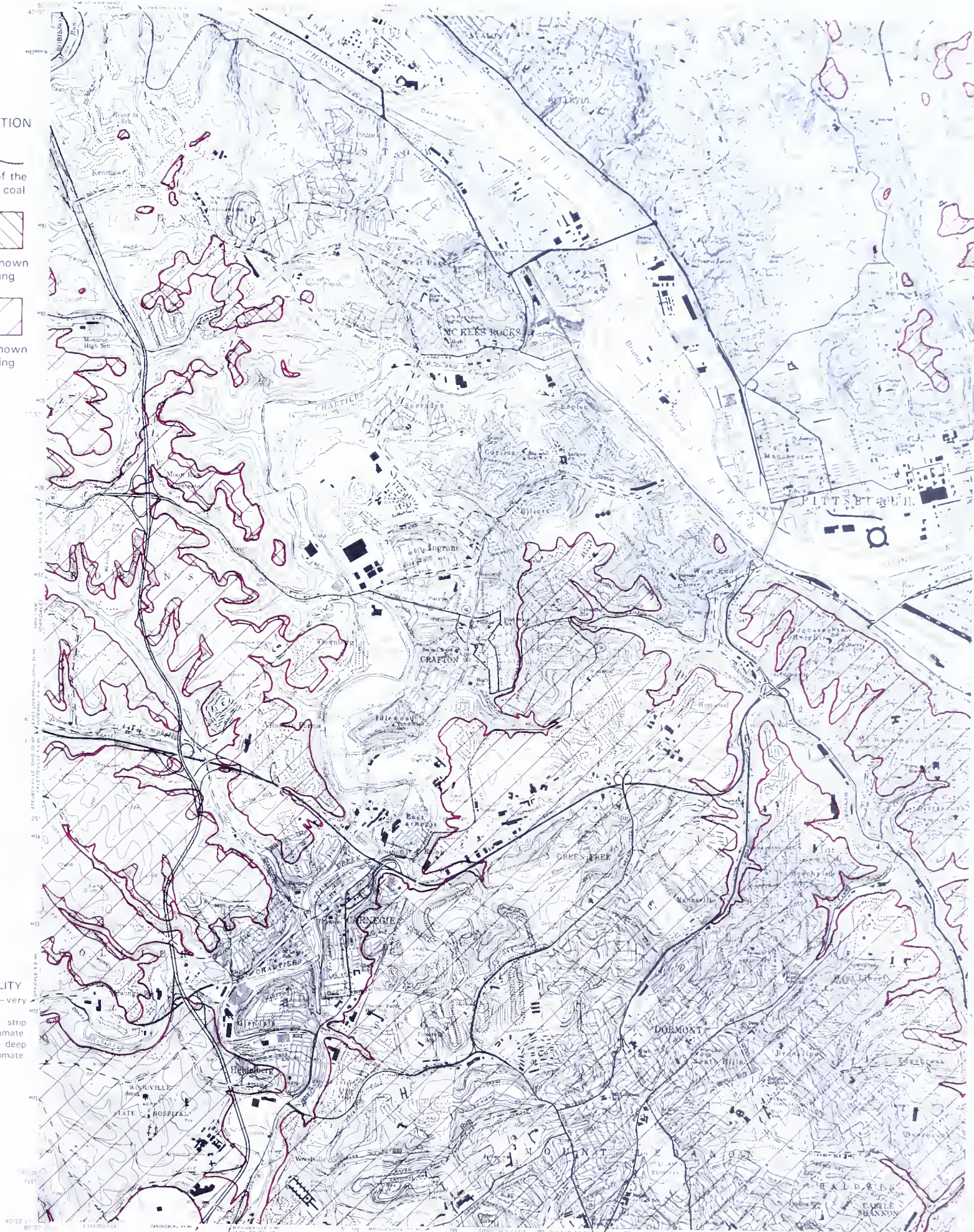
**COAL CROP LINES AND
STRUCTURE CONTOURS**

EXPLANATION

-  Crop line of the Pittsburgh coal
-  Extent of known strip mining
-  Extent of known deep mining

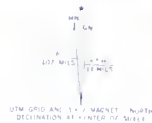
MAP RELIABILITY

- Coal crop line—very good
- Limits of known strip mining—approximate
- Limits of known deep mining—approximate



SOURCES

Crop line modified by C. H. Dodge from Shaw, E. W., and Munn, M. J. (1911), *Burgettstown-Carnegie folio*, Pennsylvania, U.S. Geological Survey Geologic Atlas of the U.S., Folio 177, 16 p. Limits of strip mining based on interpretation of topographic map and on field checking. Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



CROP LINE AND MINED-OUT AREAS OF THE
PITTSBURGH COAL

PITTSBURGH
WEST

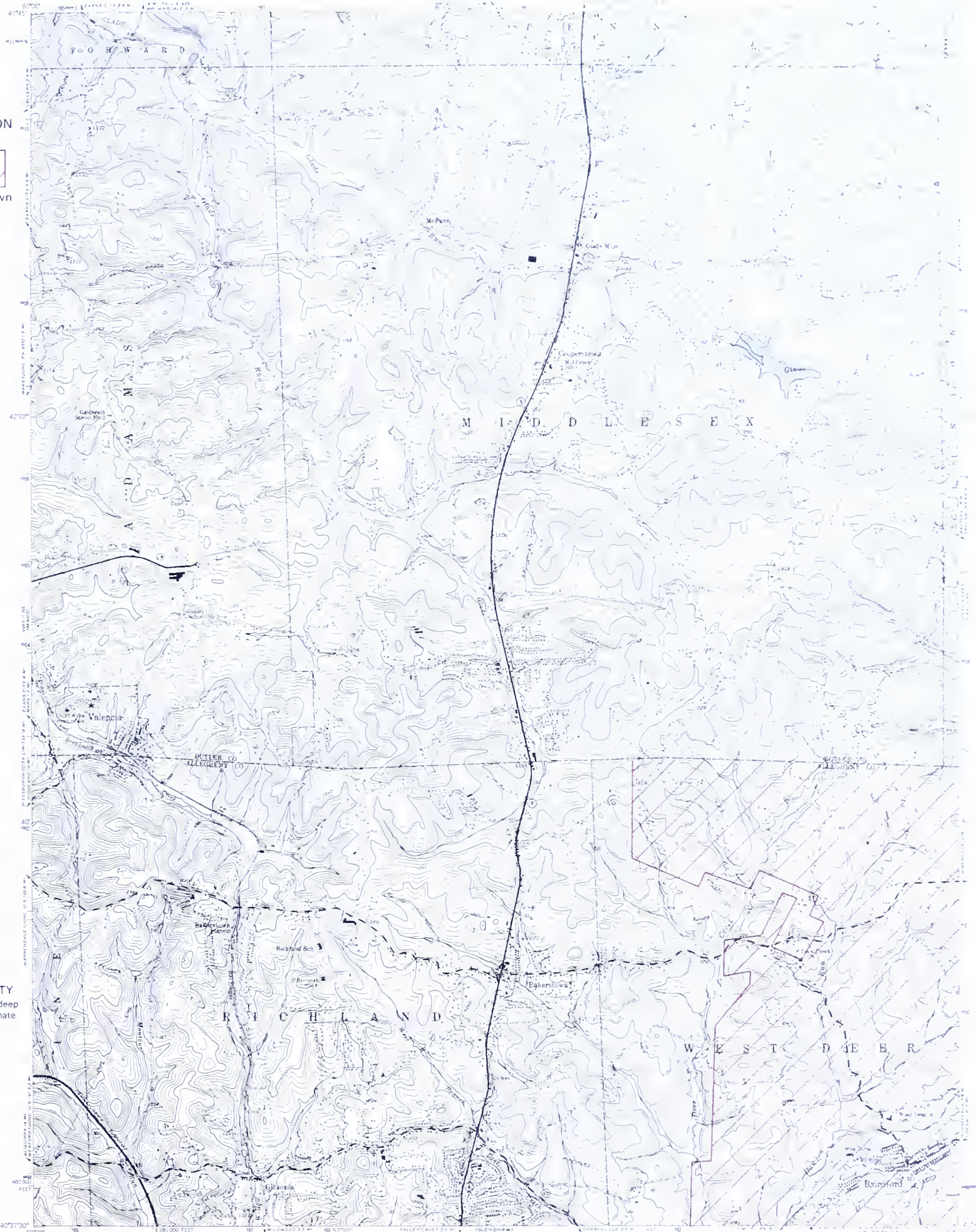
PITTSBURGH
WEST

EXPLANATION



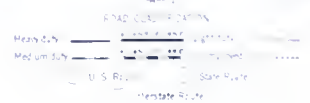
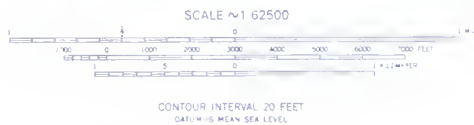
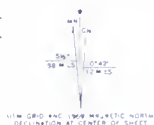
Extent of known
deep mining

MAP RELIABILITY
Limits of known deep
mining—approximate



SOURCE

Limits of deep mining from Pennsylvania Department of Environmental Resources, Bureau of Mining and Reclamation (1978), unpublished map.



VALENCIA

MINED-OUT AREA OF THE
UPPER FREEPORT COAL

EXPLANATION

CROP LINES

du
Duquesne coal

hm
Harlem coal

ub
Upper Bakerstown coal

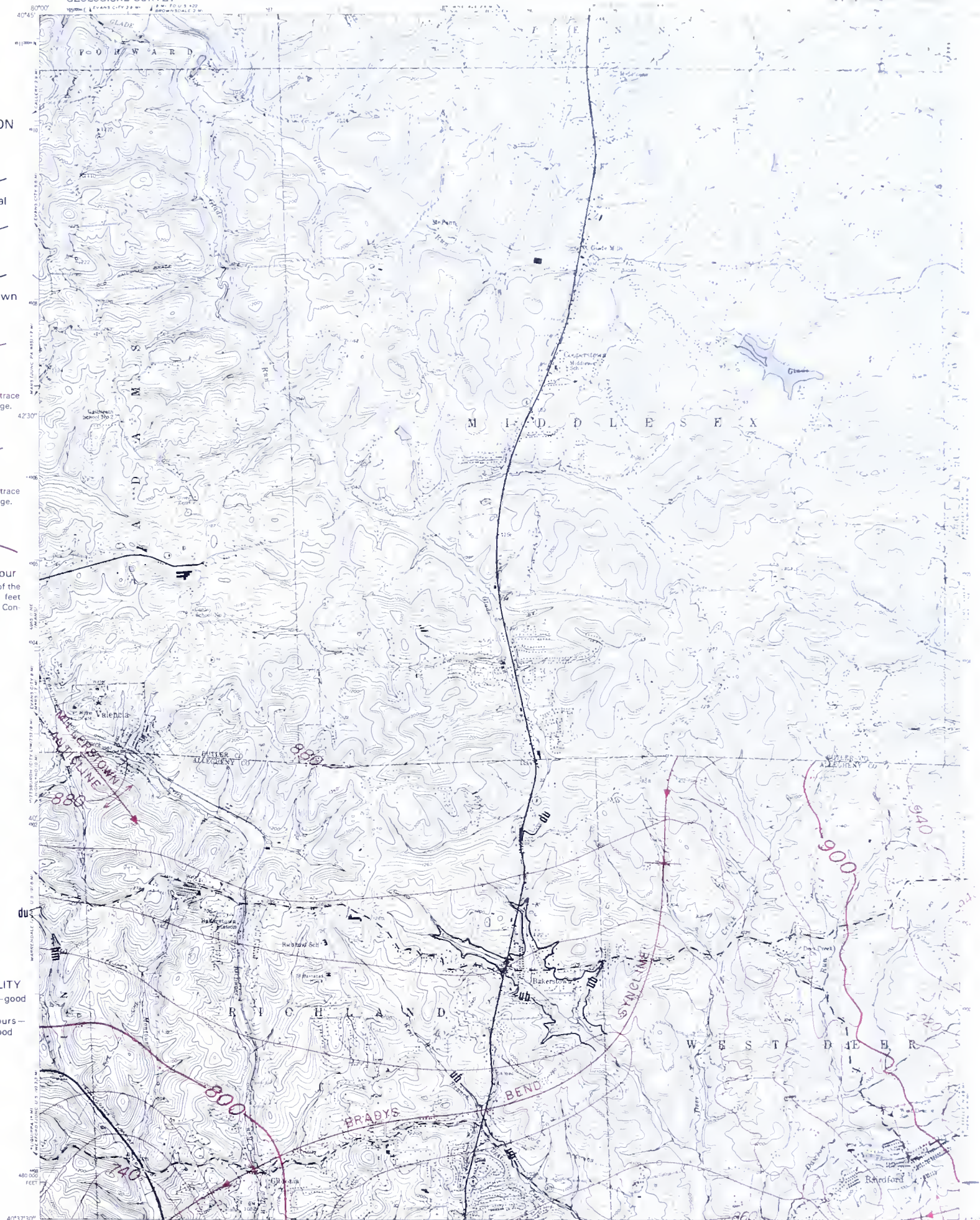
Anticline
Showing axial-plane trace
and direction of plunge.

Syncline
Showing axial-plane trace
and direction of plunge.

800
Structure contour

Altitude of the base of the
Pittsburgh coal, in feet
above mean sea level. Con-
tour interval 20 feet

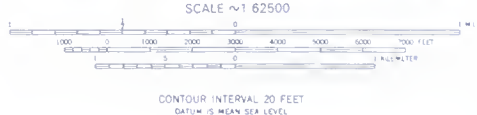
MAP RELIABILITY
Coal crop lines—good
to very good
Structure contours—
good to very good



SOURCES

Crop lines modified by C. H. Dodge from Richardson, G. B. (1932), *Geology and coal, oil, and gas resources of the New Kensington quadrangle, Pennsylvania*, U.S. Geological Survey Bulletin 829, 102 p.
Structure contours modified by C. H. Dodge from Richardson (1932) using unpublished mine maps.

UTM GRID AND 1983 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



Heavy-duty
Med. duty
U.S. Route
State Route
Interstate Route

QUADRANGLE LOCATION

VALENCIA

COAL CROP LINES AND STRUCTURE CONTOURS

